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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/751,099	NARSINH ET AL.
	Examiner	Art Unit	
	Kyung Hye Shin	2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2008*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-12* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This action is responding to application amendments filed on 11-19-2008.

Claims **1 - 12** are pending.   Claims **1, 2** have been amended.   Claims **1, 2** are

independent.   This application was filed on 12-31-2003.

Response to Arguments

2   Applicant's arguments filed 11-19-2008 have been fully considered but are moot

due to new grounds of rejection.

Claim Rejections - 35 USC § 103

The text of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3.   Claims **1 - 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Crinion et al. (US Patent No. **6,181,699**) in view of **Hussain et al.** (US Patent No.

7,161,904) and further in view of **Denney et al.** (US PGPUB No. **20030061623**) and

further in view of **Hoffman et al.** (US Patent No. **6,940,814**).

Regarding Claim 1, Crinion discloses a data link layer processor comprising:

one or more media access controllers (MACs); (Figure 8; col 5, ll 66-67; col 6, l 66 - col

7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet) access for data frames, input and

output)

In addition, Crinion discloses a MAC buffer (Col 5, ll 42-47: packet buffer (MAC buffer)),

a VLAN push module and a VLAN pop module (Col 6, ll 59-64: queue management;

push: placement of frame onto queue; removal of frame from queue). And, Crinion

discloses wherein having a flow search engine with an ingress CAM. (Col 1, ll 52-60:

CAM stores tagging information, tagging information includes lookup data and

associated tag data; col 1, ll 58-60: search circuit is connected to CAM; col 6, ll 4-8:

frame processed by receive CAM; assign a VLAN tag based upon source and

destination addresses or protocol information)

Crinion does not explicitly disclose that each MAC includes a MAC preprocessor and a

MAC postprocessor. And, Crinion does not explicitly disclose a traffic policer; first rate

buffer, and an ingress bus transmitter, an ingress bus receiver, and a second rate

buffer. However, Denney discloses:

    a) each of said one or more MACs includes a MAC preprocessor and a MAC

        postprocessor, (Denney ¶ 052, ll 1-4: MAC preprocessor, postprocessor) and

        And, Hussain discloses:

        a traffic policer (Hussain col 4, ll 42-43: ; col 7, ll 36-39: ingress policing), a first

        rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate control based on the flow to

        which packet belongs (packet flow, packet buffering)), an ingress bus transmitter

        (Hussain col 8, ll 31-33; col 8, ll 38-41: ingress processor (transmitter)); an

        egress bus receiver (Hussain col 8, ll 31-33; col 8, ll 38-41: egress processor

        (receiver)), and a second rate buffer (Hussain col 4, ll 44-50: col 7, ll 5-11: rate

        control based on the flow to which packet belongs (packet flow, packet

buffering)).

Crinion does not explicitly disclose a traffic shaper for discarding one or more frames

that exceed a bandwidth requirement. And, Crinion does not explicitly disclose

ingress control logic; an ingress meter module; and a mark generator.

And, Crinion does not explicitly disclose a first parser. However, Hussain discloses:

b) a traffic shaper for discarding one or more frames that exceed a bandwidth

     requirement prior to transmission to the MACs. (Hussain col 9, ll 57-64; col 10, ll

     14-16: discards frames that do not conform to bandwidth requirements, rate limit

     egress (output) flow: must drop packet prior to transmission to output queue or

     MACs)

And, Hussain discloses:

an ingress discard control logic (Hussain col 9, ll 57-61; col 10, ll 14-16: drop

     (discard) frames selectively (based on criteria)),

an ingress meter module (Hussain col 6, ll 62-65: perform ingress metering, egress

     metering; col 9, ll 41-51: meter packet flows for particular services)

a mark generator (Hussain col 6, 65-67: hardware based metering and marking to

     assist in rate control capabilities of system; col. 7, ll 3-13: rate control that

     includes packet rate metering, marking and dropping functions; rate metering and

     marking implemented substantially in hardware for each packet flow; col 7, ll 15-

     19; col 10, ll 1-3: mark frames based on TCM algorithm (discard, do not discard))

And, Hoffman discloses:

wherein discloses a first parser. (Hoffman col. 7, ll 52-62: parses an incoming

packet to determine various characteristics about the packet)

It would have been obvious to one of ordinary skill in the art to modify Crinion

where each MAC includes a MAC preprocessor and a MAC postprocessor as taught

by Denney, and to modify For a traffic policer; first rate buffer, and an ingress bus

transmitter, an ingress bus receiver, a second rate buffer and for discarding one or

more frames that exceed a bandwidth requirement prior to output as taught by

Hussain, and for a first parser as taught by Hoffman.   One of ordinary skill in the art

would have been motivated to employ the teachings of Denney in order to increase

packet throughput capacity and sustain performance (Denney ¶ 017, ll 1-3: " ...

Therefore, a system and method that increase packet throughput capacity and

sustain performance are needed to address the above problems. ... "), and to

employ the teachings of Hussain in order to perform a fair allocation of bandwidth

with network packet based metering within a virtual network environment (Hussain

col 1, ll 33-36: " ... *In the case of a multi-client network, for example, it may be*

desirable to meter and/or identify customers, or certain groups of customers, that are

oversubscribing (e.g., using more than their allocated bandwidth). ... "; col 1, ll 43-

49: " ... *Thus there is a general need for an improved system and method for*

performing metering in a virtual router based network switch. There is also a

general need for a system and method for performing metering in a multi-client

network that distinguishes between clients and groups of clients. There is also a

need for a system and method that supports a fair sharing of communication

resources. ... "), and to employ the teachings of Hoffman for a switch or network

element that forwards both layer 2 and layer 3 packets quickly and efficiently both

within a subnetwork and to other networks.   (Hoffman col 4, ll 60-62: " *... What is*

needed is a switch or network element that forwards both layer 2 and layer 3

packets quickly and efficiently both within a subnetwork and to other networks. ... ").

Regarding Claim 2, Crinion discloses a switching device comprising:

a) one or more physical layer interfaces for transmitting frames to a communication

 network; (Figure 8; col 8, ll 26-28; col 5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll

 17-19; col 8, ll 34-37: MAC (Ethernet) access for data frames, input/output)

c) a plurality of data link layer processors (Figure 8; col 5, ll 26-28; col 8, ll 17-19:

 data link layer (MAC) processor(s), 802.3 LAN users), wherein each data link

 layer processor comprises:

Crinion discloses wherein one or more media access controllers (MACs), wherein

each MAC is operatively coupled to a physical layer interface; (Figure 8; col 8, ll 26-

28; col 5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC

(Ethernet, 802.3 LAN users) access for data frame)   And, Crinion discloses wherein

a network processor for routing the frames towards the one or more physical layer

interfaces. (Figure 8; col 2, ll 46-54: process (processor) network traffic; col 1, ll 7-

10; col 5, ll 17-19: routing data frames)

And, Crinion discloses wherein:

at least one data bus; (Col 5, ll 20-25: functional blocks such as a switch bus

interface or data bus; col 5, ll 33-37: switch bus interface transfers data; switch

bus interface reads data off the bus and hands data to look up engine)

a management module (Col 3, ll 3-4: memory updated with information by

management software)

a queue manager having an ingress queue memory, an egress queue memory (Col

5, ll 12-15: queue manager reassembles packets and loads the appropriate FIFO

so packet can be transmitted; col 6, ll 59-64: queue management; push:

placement of frame onto queue; removal of frame from queue)

Crinion does not explicitly disclose that each MAC includes a MAC preprocessor and

a MAC postprocessor.

However, Denney discloses:

d) each of said one or more MACs includes a MAC preprocessor and a MAC

postprocessor, (Denney ¶ 052, ll 1-4: MAC preprocessor, postprocessor) and

Crinion does not explicitly a traffic shaper for discarding one or more frames from the

network processor that exceed one or more bandwidth parameters. And, Crinion

does not explicitly disclose a classifier, a forward processor and an egress

processor. And, Crinion does not explicitly disclose a scheduler.

However, Hussain discloses:

b) having a classifier, a forwarding processor and an egress processor. (Hussain
   col 8, ll 56-62; col 7, ll 62-64: classifier, flow classification for packets using
   header information (properties of packet); col 6, ll 33-36: include a virtual routing
   processor to provide IP packet forwarding (forwarding processor); col 8, ll 31-33;
   col 8, ll 38-41: egress unit composed of an array of packet processors; egress
   processor may share common code)

e) a traffic shaper, operatively coupled to the one or more MACs, for discarding one
   or more frames from the network processor that exceed one or more bandwidth
   parameters prior to transmission to the MACs. (Hussain col 9, ll 57-64; col 10, ll
   14-16: discards frames that do not conform to bandwidth requirements, rate limit
   egress (output) flow: must drop packet prior to transmission to output queue or
   MACs)

And, Hoffman discloses:

wherein a scheduler. (Hoffman col 20, ll 22-27: a scheduler; to allocate fixed rates to
   each queue for transmission within output port)

It would have been obvious to one of ordinary skill in the art to modify Crinion
where each MAC includes a MAC preprocessor and a MAC postprocessor as taught by
Denney, and to modify For a classifier, a forward processor, an egress processor, and a
traffic shaper discarding one or more frames that exceed one or more bandwidth
parameters as taught by Hussain, and a scheduler as taught by Hoffman. One of
ordinary skill in the art would have been motivated to employ the teachings of Denney in

order to increase packet throughput capacity and sustain performance (Denney ¶ 017, ll 1-3), and to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment (Hussain col 1, ll 33-36; col 1, ll 43-49), and to employ the teachings of Hoffman for a switch or network element that forwards both layer 2 and layer 3 packets quickly and efficiently both within a subnetwork and to other networks. (Hoffman col 4, ll 60-62)

Regarding Claim 3, Crinion discloses the switching device of claim 2. Crinion does not explicitly disclose the traffic shaper discarding one or more frames in accordance with a Three Color Marker (TCM) algorithm. However, Hussain discloses wherein the traffic shaper discards the one or more frames in accordance with a Three Color Marker (TCM) algorithm. (Hussain col 7, ll 15-19; col 10, ll 1-3: Three Color Marker (TCM) algorithm (RFC 2698) utilized to discard frames based on TCM requirements)

It would have been obvious to one of ordinary skill in the art to modify For a traffic shaper to discard one or more frames in accordance with a Three Color Marker (TCM) algorithm as taught by Hussain. One of ordinary skill in the art would have been motivated to employ the teachings of Hussain in order to enable the capability to perform a fair allocation of bandwidth with network packet based metering within a virtual network environment. (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 4, Crinion discloses the switching device of claim 3. Crinion does not

explicitly disclose selecting the TCM algorithm from the group consisting of a single rate

TCM, a two rate TCM, or a combination.   However Hussain discloses wherein the TCM

algorithm is selected from the group consisting of: single rate TCM, two rate TCM, and a

combination thereof. (Hussain col 7, ll 15-19; col 10, ll 1-3: TCM: two rate TCM

disclosed))

    It would have been obvious to one of ordinary skill in the art to modify For selecting

the TCM algorithm from the group consisting of a single rate TCM, a two rate TCM, or a

combination as taught by Hussain.   One of ordinary skill in the art would have been

motivated to employ the teachings of Hussain in order to enable the capability to

perform a fair allocation of bandwidth with network packet based metering within a

virtual network environment.   (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 5, Crinion discloses the switching device of claim 2.

    Crinion does not explicitly disclose a traffic shaper comprising meter module and

    discard control logic.

    However, Hussain discloses a traffic shaper comprising:

    a) a meter module for determining a flow rate associated with the frames received

        from the network processor; (Hussain col 2, ll 32-36; col 2, ll 41-44: processor

        utilized to determine a packet flow rate (bandwidth)) and

b) a discard control logic for selectively discarding the one or more frames based

upon the flow rate and the one or more bandwidth parameters. (Hussain col 9, ll

57-61; col 10, ll 14-16: drop (discard) frames selectively (based on criteria))

It would have been obvious to one of ordinary skill in the art to modify For a

meter module for determining a flow rate associated with the frames received and a

discard control logic for selectively discarding the one or more frames based upon

the flow rate and the one or more bandwidth parameters as taught by Hussain.

One of ordinary skill in the art would have been motivated to employ the teachings of

Hussain in order to enable the capability to perform a fair allocation of bandwidth

with network packet based metering within a virtual network environment. (Hussain

col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 6, Crinion discloses the switching device of claim 5. Crinion does not

explicitly disclose a marker module for marking the plurality of frames in accordance

with a TCM algorithm. However, Hussain discloses wherein the traffic shaper further

comprises a marker module for marking the plurality of frames in accordance with a

TCM algorithm. (Hussain col 7, ll 15-19; col 10, ll 1-3: mark frames based on TCM

algorithm (discard, do not discard))

It would have been obvious to one of ordinary skill in the art to modify For marking

the plurality of frames in accordance with a TCM algorithm as taught by Hussain. One

of ordinary skill in the art would have been motivated to employ the teachings of

Hussain in order to enable the capability to perform a fair allocation of bandwidth with

network packet based metering within a virtual network environment.   (Hussain col 1, ll

33-36; col 1, ll 43-49)

Regarding Claim 7, Crinion discloses the switching device of claim 6.   Crinion does

not explicitly disclose one or more bandwidth parameters comprising a committed

information rate (CIR) and an excess burst size (EBS). However, Hussain discloses

wherein the one or more bandwidth parameters comprise a committed information rate

(CIR) and an excess burst size (EBS). (Hussain col 2, ll 64-67: committed information

rate (CIR); col 10, ll 3-8: peak (excess) burst size: equivalent 2 burst sizes (committed,

peak (excess))

It would have been obvious to one of ordinary skill in the art to modify Crinion to

enable the capability for bandwidth parameters committed information rate (CIR) and

excess (peak) burst size (EBS) as taught by Hussain.   One of ordinary skill in the art

would have been motivated to employ the teachings of Hussain in order to enable the

capability to perform a fair allocation of bandwidth with network packet based metering

within a virtual network environment.   (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 8, Crinion discloses the switching device of claim 2. Crinion does not

explicitly disclose classifying frames based upon one or more properties associated with

the frames. However, Hussain discloses wherein the traffic shaper comprises a flow

search engine for classifying frames from the network processor based upon one or

more properties associated with the frames. (Hussain col 8, ll 56-62; col 7, ll 62-64: flow

classification for packets using header information (properties of packet))

It would have been obvious to one of ordinary skill in the art to modify For

classifying frames based on frame properties as taught by Hussain.   One of ordinary

skill in the art would have been motivated to employ the teachings of Hussain in order to

enable the capability to perform a fair allocation of bandwidth with network packet based

metering within a virtual network environment.   (Hussain col 1, ll 33-36; col 1, ll 43-49)

Regarding Claim 9, Crinion discloses the switching device of claim 8, wherein the flow

search engine comprises a content addressable memory (CAM). (Col 1, ll 52-54; col 2,

ll 55-57; col 3, ll 3-4: CAM utilized in data frame processing)

Regarding Claim 10, Crinion discloses the switching device of claim 9, wherein the

CAM associated with each of the plurality of data link layer processors consists of QoS

rules pertaining to the associated plurality of physical layer interfaces. (Col 1, ll 47-49;

col 3, ll 26-27: set priority, determination of quality of service (QoS) for data frame(s))

Regarding Claim 11, Crinion discloses the switching device of claim 2, wherein data

link layer processors are media access controller (MAC) processors. (Col 8, ll 26-28; col

5, ll 66-67; col 6, l 66 - col 7, l 3; col 8, ll 17-19; col 8, ll 34-37: MAC (Ethernet, 802.3

LAN users) access for data frames)

Regarding Claim 12, Crinion discloses the switching device of claim 2, wherein the

switching device is selected from the group consisting of: a router, a multi-layer

switching device, and a switch blade. (Col 2, ll 50-51; col 4, ll 45-48: switch (switching

device))

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kyung Hye Shin whose telephone number is (571)272-

3920. The examiner can normally be reached on 9:30 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tonia L. Dollinger can be reached on (571) 272-4170. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kyung Hye Shin
Examiner
Art Unit 2443

KHS
February 25, 2009

/J Bret Dennison/

Primary Examiner, Art Unit 2443